Patentee	Feyereisen et al.	**COMMUNICATION REGARDING CERTIFICATE OF CORRECTION UNDER 37 C.F.R. 1.322**
Patent No.	6,289,277	
Issue Date	9/11/2001	
Serial No.	09/413,959	
Confirmation No.	2646	
Attorney Docket No.	H25536-5411	
Title: INTERFACES FOR PLANNING VEHICLE ROUTES		

ATTN: Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patentee hereby requests issuance of a Certificate of Correction in U.S. Letters Patent No. 6,289,277 as specified on the attached Certificate (Form PTO/SB/44). Please find enclosed documentation supporting the errors identified in the above noted patent, referred to herein as Exhibits A and B.

With respect to the errors identified in claim 42 of the issued patent, Exhibit A is a copy of pages 1 to 9 of an Amendment and Response filed on August 10, 2000 including claim 42 (renumbered by the Office prior to allowance; originally filed as claim 44) and a stamped postcard indicating receipt at the U.S. Patent and Trademark Office on August 14, 2000. Exhibit B is a copy of Cols. 9 and 10 of the issued patent that include claim 42.

As shown by Exhibits A and B, the amendments to claim 44 (now 42) submitted with the Response filed on August 10, 2000, were not included in issued claim 42 in the patent.

The identified errors constitute an omission due to an Office error, and, as such, do not introduce new matter. Patentee believes the corrections as specified are necessary due to the aforementioned Office error and therefore do not believe that any fee is due for issuance of a Certificate of Correction for this patent.

If deemed necessary, the Office is authorized to charge any additional fees found due to Deposit Account No. 502432. Please contact the undersigned if you have any questions.

Respectfully submitted,

Date: September 22, 2008 /GREGORY M. TAYLOR/

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PTO/SB/44 (06-07)
Approved for use through 06/30/2007. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,289,277 B1

APPLICATION NO. : 09/413,959

ISSUE DATE : 9/11/2001

INVENTOR(S) : Feyereisen et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At Column 10, line 16, cancel the text beginning with "42. A computer-implemented system" and ending on line 23 with "and hazards (420)." and insert the following claim:

--42. A computer-implemented system for planning routes (410), in which data (110) associated with a proposed route and hazard data (120) are represented on an interface (130),
characterised in that the interface displays the route data and hazard data for multiple types of weather hazards together geographically (401,402) and includes user controls (450,480) for manipulating user-specifiable display characteristics of the hazards (420).--

MAILING ADDRESS OF SENDER(Please do not use customer number below):

Honeywell International, Inc.
101 Columbia Rd, Law Dept. AB2
Morristown, NJ 07962

EXHIBIT A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Thea Lynn Feyereisen et al.

Title: INTERFACES FOR PLANNING VEHICLE ROUTES

Docket No.: 256.037US1
Filed: October 7, 1999
Examiner: Dalena Tran

Serial No.: 09/413,959
Due Date: August 11, 2000
Group Art Unit: 3661

Commissioner for Patents
Washington, D.C. 20231

We are transmitting herewith the following attached items (as indicated with an "X"):

X A return postcard.
X An Amendment and Response (9 Pages).

Please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described above, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231, on this 10 day of August, 2000.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938, Minneapolis, MN 55402 (612-373-6900)

By: J. Michael Anglin
Atty: J. Michael Anglin
Reg. No. 24,916

Customer Number 21186

(GENERAL)

EXHIBIT A

S/N 09/413,959 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Thea Lynn Feyereisen et al.	Examiner: Dalena Tran	
Serial No.:	09/413,959	Group Art Unit: 3661	
Filed:	October 7, 1999	Docket: H16-25536 (256.037US1)	
Title:	INTERFACES FOR PLANNING VEHICLE ROUTES		

File: 322607.WPD

AMENDMENT AND RESPONSE UNDER 37 C.F.R. 1.111

Commissioner for Patents
Washington, D.C. 20231

Applicant has reviewed the Office Action mailed on May 11, 2000. Please amend the above-identified patent application as follows.

In the Claims

Please cancel claims 10, 30, 45, and 49 without prejudice against their reintroduction into this or a subsequent application.

Please amend claims 1, 18, 21, 38, and 44 as follows:

1.(Amended) A method carried out by a programmed computer for planning routes by a user in the presence of hazards, comprising;

receiving data representing a proposed route for a vehicle;

receiving data representing hazards associated with the route, the hazards having a plurality of different types;

displaying geographic representations of the route data and the hazard data together in the same presentation, the different types of hazards being represented differently from each other; and

inputting[and displaying] specifications from the user for[at least some of the displayed] modifying the displayed representations of specified portions of the hazard data.

18.(Amended) A medium containing program instructions for causing a suitably programmed digital computer to carry out a method for planning routes in the presence of hazards, the method comprising:

receiving data representing a proposed route for a vehicle;

receiving data representing hazards associated with the route, the hazards having a plurality of different types;

displaying geographic representations of the route data and the hazard data together in the same presentation, the different types of hazards being represented differently from each other; and

inputting[and displaying] specifications from the user for[at least some of the displayed] modifying the displayed representations of specified portions of the hazard data.

21.(Amended) A computer-implemented system for planning routes in the presence of hazards, comprising:

data representing a route for a vehicle;

data representing hazards with respect to the route, the hazards having a plurality of different types; and

an interface including

a geographic display of the hazard data and the route data together in the same presentation the different types of hazards being represented differently from each other, and

controls for manipulating the route data and the hazard data, and for inputting specifications for modifying the displayed representations of data associated with at least some of the hazards;

38.(Amended) Apparatus for manipulating a flight plan by a user, comprising:

means for receiving data representing an aircraft route;

means for receiving data representing hazards with respect to the route;

means for a user to input specifications of area boundaries to be associated with the hazards; and

means for presenting geographic representations of the route data, the hazard data, and the boundaries.

44. A computer-implemented system for planning routes (410), in which data (110) associated with a proposed route and hazard data (120)[associated with hazards] are represented on an interface (130),

characterised in that the interface displays the route data and[the] hazard data for multiple types of weather hazards together geographically (401, 402) and includes user controls (450, 480) for manipulating[the]user-specifiable display characteristics of the[displayed route (410) and] hazards (420).

REMARKS

Applicant has reviewed the Office Action mailed on May 11, 2000 and all the references cited therewith.

Correction of noted defects in the Drawing will be deferred until the Application is allowed, as permitted by paragraph 3 of the Office Action.

Of the four references cited against the claims, only the patent to Simpson et al. falls within the same general category as that of the present invention. Only Simpson allows a user to specify and then interactively modify a proposed route plan in accordance with a display of hazards such as weather. The cited Dearth patent concerns an in-flight cockpit display for navigating in real time in the presence of substantially unchanging hazards such as control zones and physical obstacles. It is essentially an automated map. Possible weather hazards are presented only as a line of text on the geographic display in Dearth's Fig. 3. The Atlas patent is a real-time radar microburst detector. It has no route-planning function of any kind, and no display of routes or hazards whatsoever. The Adams patent is a navigation expert for determining a sequence of aircraft headings in real time to meet unanticipated contingencies (see col. 1 lines 21-24). Hazards are considered only to the extent that they are built into the "cost" of overflying particular point. Further, Adams has no display of any kind, neither for a route nor for any hazards. And the system is designed for situations where interactivity with the user pilot is out of the question for lack of time.

Within the category of interactive route-planning tools, it is not enough to assemble the relevant data or to present it in some form to the user. As emphasized on page 2 of the Specification, "merely providing additional hazard information would not adequately support effective decision-making for routing choices." That is, the data must be presented to a user in a form that facilitates making good intuitive choices among a large number of competing considerations. That is, ergonomic factors in displaying the data and receiving user input are not only desirable but absolutely necessary.

It is in this aspect that Simpson et al. fall short. The user can select a map (Fig. 3) for entering routing information. Then he can select a weather product and then one of several types of weather display: an alphanumeric listing (Fig. 5), a geographic map (Fig. 6), a visual altitude

profile (Fig. 7), or a perspective pictorial (Fig. 8). None of these show the route and the weather hazards together. The route map cannot display weather hazards. None of the weather displays show the route. The user apparently must flip back and forth among them, retaining a mental image of the missing aspect.

Further, Simpson neither teach nor suggest any way to depict different types of weather or other hazards. As stated in the Application, different route planners care about different types of hazards. Freight and passengers feel differently about a little turbulence. The only display in which Simpson even consider different types of hazard is in the alphanumeric screen of Fig. 5, where they could possibly be listed together. This screen, however, is only a peephole that can show the total weather condition for one geographic location at a time. The route planner thus has no overall image of what lies along a proposed route, or how to eyeball a route around multiple areas of weather hazards, perhaps cutting across a low-intensity corner of a high-winds region in order to avoid a serious patch of icing somewhere else, while still getting the passengers there on time.

Planning a route interactively also requires allowing the user to see what is important to him, and, just as importantly, to eliminate data that is not important. In Simpson's system, none of the contents of any of the graphical weather screens can be modified by the user, such as to rejigger weather-area boundaries or to bury wind intensities below a desired threshold level.

Claims 1-4, 9, 12-14, 18-23, 27-29, 32-36, 38-39, 40-42, 44-46, 49, and 53-55 were rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson et al. in view of Dearth.

Amended claim 1 expresses the patentable differences between the present invention and Simpson. For example, the displaying element of the claim recites that "geographic representations" of the route data and the hazard data are displayed "together in the same presentation." As noted above, Simpson present these two aspects of the planning data only in separate selectable displays, so that the user cannot view them at the same time. Claim 1 also recites that the hazards are of different types, the different types of hazards "being represented differently from each other." Simpson's displays merely represent weather generically, with no observable distinction being made among different types—or even between weather hazards and other forms of weather that do not present a hazard to the flight plan. Simpson have no

indication or suggestion that any such distinction might be useful. Further, this reference presents all weather data in a way determined by the system. The user is limited to inputting specifications for the flight plan, but he cannot modify displayed representations of any portions "of the hazard data," such as area boundaries, selected types of hazard, threshold intensities, and so forth. This capability of permitting the user to see only what he wants to see, clearing out data that are unimportant to this particular user, and defining his own hazard areas, is of the highest ergonomic importance. Simpson simply have no suggestion of such a capability.

The secondary reference to Dearth cannot properly be combined with Simpson As discussed above, Dearth is not a planning system for "a proposed route for a vehicle." It is a real-time in-cockpit navigational aid, not a prospective planning aid. Accordingly, there is no motivation for combining it with Simpson, except for hindsight reconstruction of the present invention.

But even an improper combination would not reach the clear and significant limitations of claim 1. Dearth is cited for showing multiple hazards in col. 1 lines 4-15. This combination still lacks the display of route data and hazard data in the same geographic presentation; Dearth does not display a route at all. Dearth has no suggestion of any means for modifying his displayed representations of data associated with at least some of "the hazards." Dearth's hazard data are fixed, so that a combination would still not provide a user with this important capability of the invention.

The amendment to claim 1 import a recitation from claim 10, which was rejected under a further combination with the Atlas reference. This patent is, first of all, improper, because Atlas has nothing to do with route planning; it is merely a microburst detector and nothing more. In addition, however, it does not suggest any way to display different hazards differently. In fact, it deals with only a single hazard, microburst turbulence. Atlas has no display, and does not suggest how even the single hard might be presented to a user. In short, Atlas contributes nothing to any aspect of claim 1.

Accordingly, claim 1 is clearly patentable over the prior art. Dependent claims 2-4, 9, and 12-14 incorporate all the limitations of claim 1, and present others as well. For example, claim 4 states that the input specifications include "boundaries of areas" for the hazards.

Nowhere does either of the cited references hint at any ability of a *user* to input hazard boundaries. Article claim 18 has been amended to conform to method claim 1, and claims 19-20 depend therefrom.

Independent apparatus claim 21 has been similarly amended. The route and hazard data are presented "together." The different types of hazards are "represented differently from each other." The user input specifications have the capability of modifying displayed representations of "the hazards," and not just the route data. Dependent claims 22-23, 27-29, and 32-36 incorporate the limitations of their parent, and add other significant recitations. Even an improper combination of Simpson, Dearth, and Atlas can thus not reach the totality of claim 21.

Claim 44 has also been amended in this way. The "proposed" route and the hazard data appear on the recited display "together geographically," and not merely separately. "[M]ultiple types of weather hazards" are displayed in this manner; Simpson display weather only generically, and Dearth does not display weather geographically at all, much less several different types of weather hazards. The "user" controls manipulate characteristics of "the hazards." Again, no combination of any of the cited references permits the user to affect characteristics such as area boundaries, intensity thresholds, and type selections of geographically displayed hazards. Claims 46 and 53-55 depend from this patentable claim. Claims 45 and 49 have been canceled as redundant.

Independent claim 38 has been amended somewhat differently. Here, the feature that distinguishes the present invention from any combination of the references is that the user inputs specifications of "area boundaries to be associated with the hazards," and that the presenting means includes "geographic representations of ... the boundaries." Simpson suggests no hazard area boundaries at all. Although Dearth can display items such as control-area boundaries, these are fixed, and are most certainly not input by the user of his system. As to the references cited against other claims, Atlas has no user display and no aspect that can be varied by a user at all. The Adams patent has no display, and does not present the cells of Fig. 2 to the user. The user certainly cannot modify the cells. In any event, the cell boundaries merely represent geographic areas of fixed size, and do not represent hazards. Dependent claims 39-42 are similarly patentable.

Claims 6, 7, 10, 11, 25, 26, 30, 31, 48, and 50-51 were rejected under 35 U.S.C. 103(a) as unpatentable over Simpson et al. in view of Atlas alone.

First, it is difficult to understand how a dependent claim can logically be rejected upon a combination that excludes one of the references that the Office Action deemed necessary to reject its parent claim, because the dependent claim includes all of the parent's limitations.

Secondly, Atlas cannot be combined with any of the references cited in the Office Action to reach the totality of limitations in the rejected claims. As indicated previously, Atlas teaches a detector of one type of hazard, microbursts. His detector performs no routing or route-planning function, has no user display, and admits no user inputs for a display or for any other palpable purpose. The only way to intrude Atlas into any claim of the present invention is with hindsight knowledge of Applicant's contribution to the art. This is impermissible under 35 U.S.C. 103.

Moreover, Atlas adds nothing to the Simpson patent that is relevant to the rejected claims. Claims 6, 7, 25, and 26, and 48 recite that the specifications input by the user concern "motion" or "direction and speed" of one of the hazards. Atlas detects such quantities with respect to actual weather conditions, but most certainly does not permit a user to input them, as required in the parent claims 1, 21, and 44. Claims 10 and 30 have been canceled, but the shortcomings of Atlas with respect to their recitations that different hazard types are displayed differently are discussed above in connection with amended claims 1 and 21; the argument for claim 50 is the same. As to claims 11, 31, and 51 Atlas displays nothing, and thus cannot be germane to a recitation that "displayed hazard data" have different intensities. Atlas merely detects different wind intensities.

Claims 8, 15, 16, and 52 were rejected under 35 U.S.C. 103(a) as unpatentable over Simpson et al. in view of Dearth and Atlas.

Here again, there is no motivation to combine Atlas with Simpson and Dearth, because the systems of all three serve greatly different purposes, and both Dearth and Atlas differ in purpose from the present invention. And, again, even an improper combination of all three references does not reach the claims. Claims 8 and 15 incorporates all the limitations of their parent claim 1; as discussed at length above, this claim has at least three major recitations that are not shown in any combination of the cited references. As to claims 16 and 52, none of the

references teaches that the user controls include any control to "establish a threshold for a hazard" to be avoided by a route, or that the "user can set" a number of thresholds for the hazards.

Claims 5, 17, 24, 37, 43, 47, 56, and 57 were rejected under 35 U.S.C. 103(a) as unpatentable over Simpson et al. in view of Adams et al.

Here again, it is difficult to understand how a dependent claim can logically be rejected upon a combination that excludes one of the references necessary to reject its parent.

Claims 5, 24, and 47 add to their parent claims recitations that the hazard boundaries "are polygons." Most obviously, the cells of Adams Fig. 2 are not the boundaries of hazards. Instead, they merely represent geographic areas of some convenient size for the optimization algorithm, which requires some discrete size in order to solve a combinatorial problem; the size is chosen only for computational tractability. In addition, the parent claims of each of these claims requires that the boundaries are specifications that are input by a *user* of the system. Adams clearly specifies the boundaries upon design of the system, and the user pilot has no control over them—in fact, does not see them and is not aware of them. Accordingly, the Adams reference is totally inapplicable to these claims.

Claims 17, 37, 43, 56, and 57 include limitations to an optimization function. Although the purpose of Adams' system is to optimize in real time a return to a previous plan, grafting this function on to the Simpson reference, or onto any of the cited references, is a xenotransplant performed solely in light of knowledge of the present invention. The overall system of the present invention is an interactive route optimizer that automatically generates an optimized route, but then permits a user to modify the route interactively until a balance is reached between objective optimality and subjective factors. Adams suggests only the objective half of this concept; neither Adams nor any other cited reference suggests that these two ideas could or even should be combined into a single system.

CONCLUSION

For the above reasons, Applicant urges that that all the claims presently in the Application are in condition for allowance. Applicant therefore respectfully requests that they be

reexamined under 35 U.S.C. 132 and allowed. The Examiner is invited to telephone Applicant's attorney at 612- 373-6971 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 01-1125.

Respectfully submitted,

THEA LYNN FEYEREISEN ET AL.

By their Representatives,

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Date 10 Aug 2000 By _____

J. Michael Anglin
Reg. No. 24,916

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner of Patents, Washington, D.C. 20231 on **August 10, 2000**.

Beth Bauer
Name

_____
Signature

EXHIBIT A

PATENT APPLICATION FOR Interfaces for Planning Vehicle Routes

INVENTOR(S) Thea Lynn Feyereisen et al.

SERIAL NO.: 09/413,959

THE FOLLOWING HAS BEEN RECEIVED IN THE U.S. PATENT AND TRADEMARK OFFICE ON THE DATE STAMPED HEREON:

- ☐ Missing Parts of Application Transmittal
- ☐ Combined Declaration/Power of Attorney
- ☐ Power of Attorney
- ☐ Assignment and Cover Sheet
- ☐ Information Disclosure Statement ☐ Form PTO 1449 with ____ References
- ☐ Request for Corrected Filing Receipt
- ☒ Amendment/Response (9 page(s))
- ☐ Petition for Extension of Time (_____ months)
- ☐ Amendment After Final Rejection (_____ page(s))
- ☐ Notice of Appeal
- ☐ Appeal Brief (_____ page(s))
- ☐ Issue Fee Transmittal
- ☐ Formal Drawing(s); No. of Sheets _____
- ☐ Fee $ _____ charged to Deposit Account No. 01-1125

OTHER _____ SBU 26536 Attorney: Shudy

Attorney Docket No.: H16

data representing a route for a vehicle;

data representing hazards with respect to the route, the hazards having a plurality of different types; and

an interface including

a geographic display of the hazard data and the route data together in the same presentation the different types of hazards being represented differently from each other, and

controls for manipulating the route data and the hazard data, and for inputting specifications for modifying the displayed representations of data associated with at least some of the hazards.

21. The system of claim **20** where the vehicle is an aircraft.

22. The system of claim **20** where the specifications include boundaries of areas representing at least one of the hazards.

23. The system of claim **22** where the boundaries are polygons.

24. The system of claim **20** where the specifications include data relating to motion over time of at least one of the hazards.

25. The system of claim **24** where the data relating to motion comprises direction and speed of the one hazard over time.

26. The system of claim **20** where the route data includes data for a plurality of alternative routes.

27. The system of claim **20** where the route data includes a plurality of waypoints.

28. The system of claim **20** where hazard types include weather hazards.

29. The system of claim **28** where the displayed hazard data represents different hazard intensities differently.

30. The system of claim **20** where the geographic representations are displayed in a lateral depiction.

31. The system of claim **20** where the geographic representations are displayed in a vertical depiction.

32. The system of claim **20** where inputting the specifications from the user comprises receiving inputs from a set of controls operable by the user.

33. The system of claim **32** where the controls include a control for varying the time at which the hazards are depicted in the display.

34. The system of claim **32** where the controls include at least one control to establish a threshold for an intensity of a hazard to be avoided by the route.

35. The system of claim **20** further comprising an optimizer for producing the received route data.

36. Apparatus for manipulating a flight plan by a user, comprising:

means for receiving data representing an aircraft route;

means for receiving data representing hazards with respect to the route;

means for a user to input specifications of area boundaries to be associated with the hazards; and

means for presenting geographic representations of the route data, the hazard data, and the boundaries.

37. The apparatus of claim **36** where the apparatus comprises a programmed computer.

38. The apparatus of claim **36** where the presenting means includes a visual display.

39. The apparatus of claim **36** where the input means includes a cursor-positioning device.

40. The apparatus of claim **36** where the hazard receiving means includes a communications device.

41. The apparatus of claim **36** further comprising an optimizing means for minimizing the cost of the route in response to the specifications input by the user.

42. A computer-implemented system for planning routes **(410)**, in which data **(110)** associated with a route and data **(120)** associated with hazards are represented on an interface **(130)**,

characterized in that the interface displays the route data and the hazard data together geographically **(401, 402)** and includes controls **(450, 480)** for manipulating the displayed route **(410)** and hazards **(420)**.

43. A system according to claim **42**, characterised in that the user controls include boundaries **(430)** of areas representing at least one of the hazards.

44. A system according to claim **43**, characterized in that the boundaries are polygons.

45. A system according to claim **43**, characterised in that the user controls include motion parameters **(226)** of at least one of the hazards.

46. A system according to claim **42**, characterised in that different types of weather hazards are displayed differently.

47. A system according to claim **42**, characterised in that different intensities of the same weather hazards are displayed differently.

48. A system according to claim **42**, characterised in that the user can set a number of thresholds for different types of the weather hazards.

49. A system according to claim **42**, characterized in that the geographic display is a lateral depiction **(401)**.

50. A system according to claim **42**, characterized in that the geographic display is a vertical depiction **(402)**.

51. A system according to claim **42**, characterized in that the hazard data is displayed temporally as well as geographically.

52. A system according to claim **42**, characterized in that the route data is optimized while avoiding at least certain of the hazards.

53. A system according to claim **52**, characterized in that the route data has a minimum cost function with respect to certain factors.

* * * * *